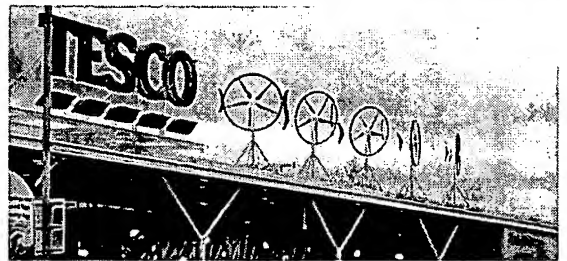
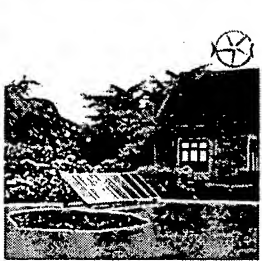
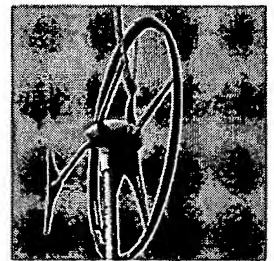
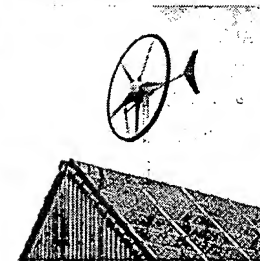
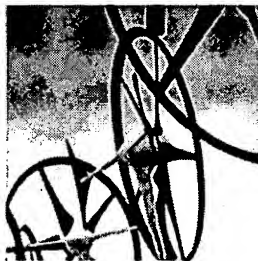
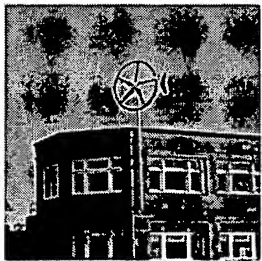
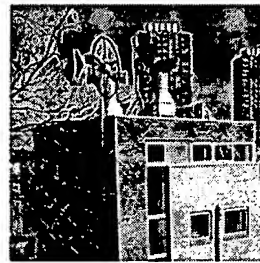
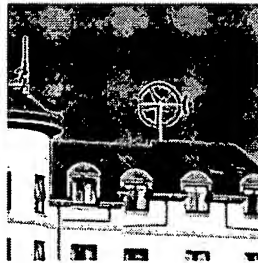
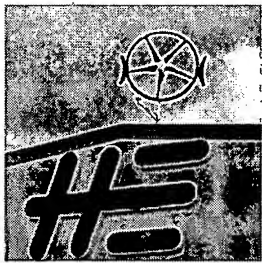
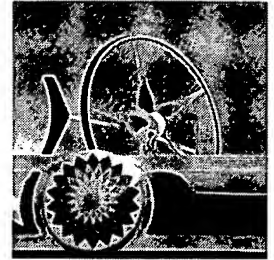
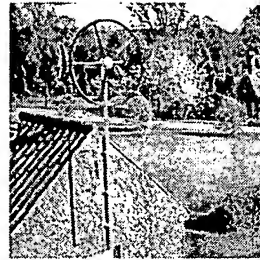
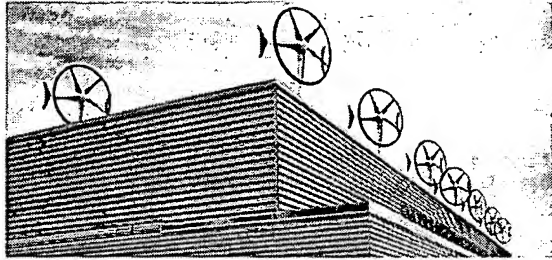


**SWIFT** Rooftop Wind  
Energy System™



## **Clean, renewable energy – accessible for all...**

We are Renewable Devices and this is our flagship product, the SWIFT Rooftop Wind Energy System™. We are a multi-disciplinary team of engineers and designers, who are passionate about providing safe, clean energy for everyone. The SWIFT™ system is the world's first rooftop wind turbine with unique, patented technologies for unprecedented safe, efficient and near silent operation. With installations worldwide, this design icon has been quietly generating clean energy for homeowners, community groups and commercial customers, for over four years. When correctly sited, the SWIFT Rooftop Wind Energy System™ will drastically cut carbon emissions, reduce electricity bills and generally make the world a more beautiful place!!



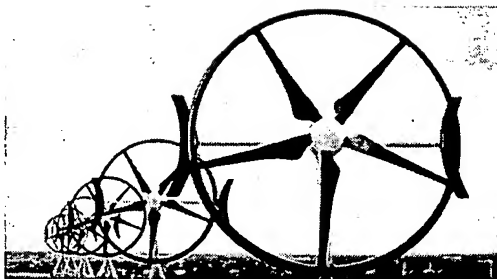
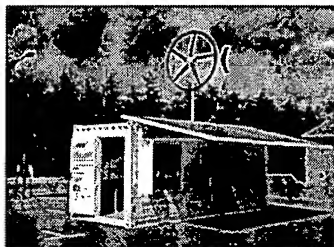
## System Overview

The SWIFT Rooftop Wind Energy System™ is installed as a complete working system, which includes the SWIFT™ turbine, mounting structure and brackets, all electronic controls and wiring connections. The system works by quietly and efficiently capturing energy from the wind and by means of a unique rotor design and control sequence, this is converted into usable electricity.

When considering installing a SWIFT™, it is essential to determine whether a site is suitable, both in terms of the local wind resource and the structural integrity of the proposed building. Whilst we all want to do our bit for the environment, these factors must be considered very carefully beforehand. A SWIFT™ system is simply installed within a few hours and savings begin immediately.

## Universal Application

There are various ways a SWIFT Rooftop Wind Energy System™ can be installed. It can either be grid connected, whereby electricity is preferentially drawn from the SWIFT™ and anything required in addition to that is topped up by an electricity supplier. Alternatively it can be linked directly to a hot water heating system or installed with a battery bank for off-grid situations. The SWIFT™ can be adapted for a multitude of applications, making it the most versatile rooftop wind system available.



## Safety

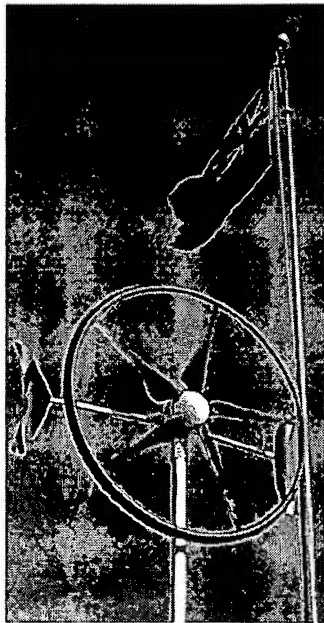
Of paramount importance for a rooftop wind turbine, the SWIFT™ meets and exceeds all UK and European safety standards for small scale wind generators. The system has been independently verified for structural, electrical and grid monitoring safety by a UK Government agency. The system is CE marked, EMC certified and has G83 certification.

## Performance

A patented twin-vane progressive mechanical furling mechanism, coupled with a sophisticated electronic control system ensures the SWIFT™ offers incredible performance for a turbine of its size. The optimum amount of power can be taken from the turbine under all wind and loading conditions and a correctly sited turbine can typically provide a third of an average household's energy requirements.

## Acoustics

Critical for domestic installations - the SWIFT Rooftop Wind Energy System™ is the quietest wind system currently available. Our patented acoustic suppression aerodynamics, notably the ring diffuser, remove noisy, turbulent air currents at the blade tips. In addition the direct driven generator contains no gear box, which means there is no mechanical noise. The SWIFT™ always operates below background noise, thereby making it virtually inaudible.



## Vibrations

Specifically developed dampening systems in the mounting brackets prevent the transmission of oscillations from turbine to building, by absorbing a wide range of vibration frequencies. The SWIFT™ can therefore be installed on a multitude of building designs, from traditional solid masonry builds to timber frame constructions. Flat roof installations are equally possible.

## Aesthetics

The SWIFT™ has become a design icon in its own right. Our technical team work in close partnership with our creative designers, to ensure the SWIFT remains not only the best performing, but also the most beautiful turbine in its class. Further, the SWIFT™ has been designed with planning legislation in mind. We have worked with planning authorities across the world to ensure that the system adheres to the strictest of planning requirements.



## Harm Neutral

Of huge importance to all of us at Renewable Devices; our SWIFT Rooftop Wind Energy System™ is of an environmentally sustainable "harm neutral" design, which allows the SWIFT™ to become carbon and energy positive within four years, when sited correctly (quantified by independent studies).

## Consumer Benefits

The SWIFT™ provides an attractive solution in the increasingly unstable energy market and gives the consumer the satisfaction that their energy is helping to safeguard the environment for future generations. In addition, the SWIFT™ can substantially reduce energy bills by directly offsetting grid electricity and as the system can pay for itself in as little as six years; free electricity is provided thereafter. Grant assistance (from the Low Carbon Buildings Program and SCHRI, both in the UK) reduces the cost yet further.

Each unit of electricity generated from a SWIFT™ Rooftop Wind Energy System displaces one unit generated from fossil fuels, with the added benefit that the electricity is consumed on-site, thus negating losses from transmission. This amounts to a displacement of approximately 1.4 tonnes of CO<sub>2</sub> per year - a significant environmental contribution.

The SWIFT™ is the first specifically rooftop mountable wind turbine. Renewable Devices are the pioneers of such energy systems, which ensures we are best placed to understand the fundamentals when it comes to integrating wind into the built environment.

## Turbine Specification

Turbine	Upwind horizontal axis
Rated power output	1.5 kW *
Annual power supplied	Up to 2000 kWh **
CO <sub>2</sub> displacement/annum	1.4 tonnes ***
Product life	20 years
Generator	Brushless PMG
Rotor	2.1 m moulded carbon fibre
Mast	Bespoke aluminium (to BS1387, ISO65)
Mounting system	Custom designed brackets
Cut in Speed	2.3 m/s
Acoustic emissions	< 35dB (A) (across all wind speeds)
EMI (electromagnet emissions)	CE certified (BS EN 6100)
Grid Connection	G83 certified
Safety, electrical and reliability - standards (independently verified)	BS EN 61400-2, BS 7671 & BS 5760-7

\* Rated wind speed: 12.5m/s

\*\* Dependent on siting of turbine

\*\*\* Substituting end-user electricity with a single 1.5kW rooftop turbine at 30% utilization by CEDRL RETScreen® International

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100% recycled paper



## **APPENDIX B**